

To: Scott Roberts[scott@mountainstudies.org]
From: Wall, Dan
Sent: Thur 9/17/2015 2:05:23 PM
Subject: FW: Two Questions regarding Methods

Here's a partial answer. I am not sure it answers it exactly. Let me know if there is something else you need.

-----Original Message-----

From: Auer, Steven [mailto:sauer@TechLawInc.com]
Sent: Wednesday, September 16, 2015 10:18 PM
To: Wall, Dan; McDaniel, Mark; Walker, Scott
Cc: Goodrich, Donald
Subject: RE: Two Questions regarding Methods

I assume that you received the analytical requirements from Scott Walker. My response is, macros are moist (as collected) then we can assume a 75% moisture content and we need a minimum of 2.5 grams (dry weight) of clean macroinvertebrates (at a minimum). The macroinvertebrate specimens should be pulled from the sample using forceps and any twigs, pebbles or foreign debris removed prior to adding to the sample container. If 0.5 grams dry weight is achieved by doing so, then we can get the desired detection limit as needed. Keep in mind that we need additional mass for QC requirements and that is why I stated 2.5 grams dry weight initially. The field sampler can do a quick check in the field if they bring a balance or just get as many as possible.

As far as the next question, and a hard one to explain. I guess I'm not sure what exactly you are asking but I'll try to explain to the best of my knowledge. Timberline Aquatics uses a standard 300 count method for the Multi Metric Index Approach (MMI) adopted by Colorado Department of Public Health and Environment, which is standard. The collection approach described in the Baseline Ecological Risk Assessment (BERA) was similar to that of Chester Anderson, as requested during the time of collection and write-up of the BERA. The approach to collecting macros are somewhat similar (quantitatively speaking) but a little different with each technique - the analysis of the MMI is the same. Both use a 300 count and compare against established biotypes to determine a degree of health of the stream. The rectangular kick net and the Hess Sampler are both used for this and should give comparable results. Hess Samplers are better for isolating a particular area prior to disturbance than the rectangular kick net due to the nature of the equipment. Both should be using the single habitat approach and the only difference is with the replicates used for collection.

As far as analysis of the bugs, the chironomids get broken down to the lowest taxonomical level and all other species accounted for diversity.

Lets call Dave at Timberline for a full breakdown.

Steve

From: Wall, Dan [wall.dan@epa.gov]
Sent: Wednesday, September 16, 2015 4:53 PM
To: McDaniel, Mark; Walker, Scott; Auer, Steven

Cc: Goodrich, Donald
Subject: FW: Two Questions regarding Methods

Can you all help me with these questions? There will be some bug samples coming at some point.

From: Scott Roberts [mailto:scott@mountainstudies.org]
Sent: Wednesday, September 16, 2015 4:03 PM
To: Wall, Dan
Subject: Two Questions regarding Methods

Hi Dan,

Great to see you yesterday. In order to make sure we are consistent with methodologies used in 2014, I have a few questions:

1) Can your chemist share the sample specifications they will need for tissue analysis? (e.g., what is the minimum # of grams per sample).

2) I believe Timberline Aquatics conducted the IDs and Metric calculation for the 2014 data. They stated that they used a 300-count sub-sample to calculate Colorado's multi-metric index. I want to ensure that I use the same sub-sampling methodology so that our multi-metric index is comparable. Would it be possible to ask Timberline for their methodology?

You or Steve Auer may already have Timberline's methodology according to the BERA Report, in Appendix 11 on p. 499 (<http://www2.epa.gov/sites/production/files/2015-06/documents/upper-animas-draft-bera-appendices-april-2015.pdf>)<<http://www2.epa.gov/sites/production/files/2015-06/documents/upper-animas-draft-bera-appendices-april-2015.pdf>>

"February 6, 2015 Mr. Steve Auer TechLaw 16194 W. 45th Drive Denver, CO 80403 Dear Mr. Auer, Enclosed are the results from fourteen (14) benthic macroinvertebrate samples collected for the Animas River Biomonitoring Project during the fall of 2014. Data are reported as 300-count subsamples (based on protocols for MMI calculation provided by the Colorado Department of Public Health and Environment). Specific information on subsampling has been provided in the enclosed Excel file entitled "Animas 2014 grid data". MMI scores were calculated from benthic data for each site. The MMI results are provided at the end of this report. Please contact me if you have any questions. Sincerely, Timberline Aquatics, Inc. David E. Rees President Enc. /dr"

THANKS DAN!

Scott

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